CLAIMS

1. An optical semiconductor device comprising:

a substrate;

a semiconductor laser including a lower clad layer, an active layer, and an upper layer formed in this order on said substrate;

an electroabsorptive modulator including said lower clad, a light absorption layer, and said upper clad layer formed in this order on said substrate; and

a separation region provided between said semiconductor laser and said electroabsorptive modulator and including said lower clad layer, a wave guide layer, and said upper clad layer formed in this order on said substrate, wherein

said upper clad layer extends from said semiconductor laser through said separation region to said electroabsorptive modulator,

said semiconductor laser, separation region, and electroabsorptive modulator each have a side provided in parallel with each other, and

said upper clad layer extends up to said side of said separation region.

2. The optical semiconductor device according to claim 1, which further comprises a contact layer provided on said upper clad layer, a first upper electrode provided on said contact layer in said semiconductor laser, and a second upper electrode provided on said electroabsorptive modulator.

3. The optical semiconductor device according to claim 1, which further comprises a lower electrode provided on an under-side of said substrate.

4. The optical semiconductor device according to claim 1, which further comprises a channel from which said

upper clad layer is removed, said channel being provided such that said channel surrounds said upper clad layer.

5. The optical semiconductor device according to claim 4, wherein said channel extends up to said side of said reparation region.

6. The optical semiconductor device according to claim 1, wherein said upper clad layer extends from said semiconductor laser through said separation region to said electroabsorptive modulator via said each side.

7. The optical semiconductor device according to claim 2, wherein said contact layer is removed from said separation region.

8. The optical semiconductor device according to claim 2, wherein said contact layer has a high resistance.

9. The optical semiconductor device according to claim 8, wherein said high resistance of said contact layer is made by ion-implantation.